



[4910-13-P]

**DEPARTMENT OF TRANSPORTATION**

**Federal Aviation Administration**

**14 CFR Part 39**

**[Docket No. FAA-2018-0161; Product Identifier 2017-NM-088-AD]**

**RIN 2120-AA64**

**Airworthiness Directives; Bombardier, Inc., Airplanes**

**AGENCY:** Federal Aviation Administration (FAA), DOT.

**ACTION:** Notice of proposed rulemaking (NPRM).

**SUMMARY:** We propose to supersede Airworthiness Directive (AD) 2013-11-12, which applies to certain Bombardier, Inc., Model BD-100-1A10 airplanes. AD 2013-11-12 requires inspecting for the correct serial number of a certain hydraulic system accumulator, and replacing affected hydraulic system accumulators with new or serviceable accumulators. Since we issued AD 2013-11-12, we have determined that certain other hydraulic system accumulators must be modified or replaced and life limits must be added. This proposed AD would expand the applicability and require modifying or replacing certain hydraulic brake system accumulators. This proposed AD would also require revising the maintenance or inspection program to add life limits for the accumulators. We are proposing this AD to address the unsafe condition on these products.

**DATES:** We must receive comments on this proposed AD by [INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

**ADDRESSES:** You may send comments, using the procedures found in 14 CFR 11.43 and 11.45, by any of the following methods:

- Federal eRulemaking Portal: Go to <http://www.regulations.gov>. Follow the instructions for submitting comments.
- Fax: 202-493-2251.
- Mail: U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE., Washington, DC 20590.
- Hand Delivery: Deliver to Mail address above between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

For service information identified in this NPRM, contact Bombardier, Inc., 400 Côte-Vertu Road West, Dorval, Québec H4S 1Y9, Canada; telephone 514-855-5000; fax 514-855-7401; email [thd.crj@aero.bombardier.com](mailto:thd.crj@aero.bombardier.com); Internet <http://www.bombardier.com>. You may view this referenced service information at the FAA, Transport Standards Branch, 2200 South 216th St., Des Moines, WA. For information on the availability of this material at the FAA, call 206-231-3195.

### **Examining the AD Docket**

You may examine the AD docket on the Internet at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2018-0161; or in person at the Docket Management Facility between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this proposed AD, the regulatory evaluation, any comments received, and other information. The street address for the Docket Operations

office (telephone 800-647-5527) is in the ADDRESSES section. Comments will be available in the AD docket shortly after receipt.

**FOR FURTHER INFORMATION CONTACT:** Cesar Gomez, Aerospace Engineer, Airframe and Mechanical Systems Section, FAA, New York ACO Branch, 1600 Stewart Avenue, Suite 410, Westbury, NY 11590; telephone 516-228-7318; fax 516-794-5531.

**SUPPLEMENTARY INFORMATION:**

**Comments Invited**

We invite you to send any written relevant data, views, or arguments about this proposal. Send your comments to an address listed under the ADDRESSES section. Include “Docket No. FAA-2018-0161; Product Identifier 2017-NM-088-AD” at the beginning of your comments. We specifically invite comments on the overall regulatory, economic, environmental, and energy aspects of this proposed AD. We will consider all comments received by the closing date and may amend this proposed AD based on those comments.

We will post all comments we receive, without change, to <http://www.regulations.gov>, including any personal information you provide. We will also post a report summarizing each substantive verbal contact we receive about this proposed AD.

**Discussion**

We issued AD 2013-11-12, Amendment 39-17472 (78 FR 33206, June 4, 2013) (“AD 2013-11-12”), for certain Bombardier, Inc., Model BD-100-1A10 airplanes. AD 2013-11-12 requires inspecting for the correct serial number of a certain hydraulic

system accumulator, and replacing affected hydraulic system accumulators with new or serviceable accumulators. AD 2013-11-12 resulted from reports of failure of a screw cap or end cap of the hydraulic system accumulator while on the ground, which resulted in loss of use of that hydraulic system and high-energy impact damage to adjacent systems and structures. We issued AD 2013-11-12 to prevent failure of a screw cap or end cap and loss of the related hydraulic system, which could result in damage to airplane structure and consequent reduced controllability of the airplane.

#### **Actions Since AD 2013-11-12 Was Issued**

Since we issued AD 2013-11-12, we have determined that certain other hydraulic system accumulators (specifically, hydraulic brake system accumulators) must be modified or replaced and life limits must be added.

Transport Canada Civil Aviation (TCCA), which is the aviation authority for Canada, has issued Canadian Airworthiness Directive CF-2011-41R1, dated March 27, 2017 (referred to after this as the Mandatory Continuing Airworthiness Information, or “the MCAI”), to correct an unsafe condition for certain Bombardier, Inc. Model BD-100-1A10 airplanes. The MCAI states:

Seven cases of on-ground hydraulic accumulator screw cap/end cap failure have been experienced on CL-600-2B19 aeroplanes, resulting in loss of the associated hydraulic system and high-energy impact damage to adjacent systems and structure. To date, the lowest number of flight cycles accumulated at the time of failure has been 6991.

Although there have been no failures to date on any BD-100-1A10 aeroplanes, accumulators similar to those installed on the CL-600-2B19 are installed on the BD-100-1A10. The affected part numbers (P/Ns) of the

accumulators installed on BD-100-1A10 are 900095-1 (Auxiliary Hydraulic System accumulator), 33-155500 (Inboard Brake accumulator), and 33-147500 (Outboard Brake accumulator).

A detailed analysis of the calculated line of trajectory of a failed screw cap/end cap for the accumulators has been conducted, resulting in the identification of areas where systems and/or structural components could potentially be damaged. Although all of the failures on the CL-600-2B19 to date have occurred on the ground, an in-flight failure affecting such components could potentially have an adverse effect on the controllability of the aeroplane.

Revision 1 of this [Canadian] AD is issued to mandate the [inspection and] replacement [of] Brake System Hydraulic accumulators that are not identified by the letter "E" or "NAE" after the serial number on the identification plate. Revision 1 also mandates the re-orientation of the brake accumulators P/N 33-147500 and P/N 33-155500 and the insertion of three discard tasks in the Challenger 300 Time Limits/Maintenance Checks (TLMC) Manual.

You may examine the MCAI in the AD docket on the Internet at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2018-0161.

### **Related Service Information under 1 CFR part 51**

Bombardier, Inc. has issued the following service information:

- Service Bulletin 100-32-20, Revision 02, dated April 14, 2015, which describes procedures for modifying (e.g., re-orienting) the installation of the hydraulic brake accumulators.
- Service Bulletin 100-32-21, dated May 24, 2012, which describes procedures for replacing the hydraulic brake system accumulators.
- Task 29-21-13-101 of Chapter 5, Part 2, Airworthiness Limitations, of Bombardier Challenger 300 BD-100 Time Limits/Maintenance Checks, Revision 17,

dated December 15, 2016, which describes procedures for removal and installation of the hydraulic brake system accumulators.

- Task 32-43-37-101 of Chapter 5, Part 2, Airworthiness Limitations, of Bombardier Challenger 300 BD-100 Time Limits/Maintenance Checks, Revision 17, dated December 15, 2016, which describes procedures for removal and installation of the brake accumulators.

- Task 32-44-05-101 of Chapter 5, Part 2, Airworthiness Limitations, of Bombardier Challenger 300 BD-100 Time Limits/Maintenance Checks, Revision 17, dated December 15, 2016, which describes procedures for removal and installation of the emergency parking brake accumulators.

This service information is reasonably available because the interested parties have access to it through their normal course of business or by the means identified in the ADDRESSES section.

#### **FAA's Determination and Requirements of this Proposed AD**

This product has been approved by the aviation authority of another country, and is approved for operation in the United States. Pursuant to our bilateral agreement with the State of Design Authority, we have been notified of the unsafe condition described in the MCAI and service information referenced above. We are proposing this AD because we evaluated all pertinent information and determined an unsafe condition exists and is likely to exist or develop on other products of the same type design.

This proposed AD would require revisions to certain operator maintenance documents to include new actions (e.g., inspections). Compliance with these actions is

required by 14 CFR 91.403(c). For airplanes that have been previously modified, altered, or repaired in the areas addressed by this proposed AD, the operator may not be able to accomplish the actions described in the revisions. In this situation, to comply with 14 CFR 91.403(c), the operator must request approval for an alternative method of compliance according to paragraph (p)(1) of this proposed AD. The request should include a description of changes to the required actions that will ensure the continued damage tolerance of the affected structure.

**Costs of Compliance**

We estimate that this proposed AD affects 187 airplanes of U.S. registry.

We estimate the following costs to comply with this proposed AD:

**Estimated costs**

<b>Action</b>	<b>Labor cost</b>	<b>Parts cost</b>	<b>Cost per product</b>	<b>Cost on U.S. operators</b>
Inspection to determine part numbers (retained actions from AD 2013-11-12)	1 work-hour X \$85 per hour = \$85	\$0	\$85	\$15,895
Modifying or replacing hydraulic brake system accumulators and revising the maintenance or inspection program (new proposed actions)	59 work-hours X \$85 per hour = \$5,015	Up to \$31,500	Up to \$36,515	Up to \$6,828,305

We estimate the following costs to do any necessary replacements that would be required based on the results of the inspection. We have no way of determining the number of aircraft that might need these replacements.

**On-condition costs**

<b>Action</b>	<b>Labor cost</b>	<b>Parts cost</b>	<b>Cost per product</b>
Hydraulic accumulator replacement	5 work-hours X \$85 per hour = \$340	\$4,510	\$4,850

**Authority for this Rulemaking**

Title 49 of the United States Code specifies the FAA’s authority to issue rules on aviation safety. Subtitle I, section 106, describes the authority of the FAA Administrator. “Subtitle VII: Aviation Programs,” describes in more detail the scope of the Agency’s authority.

We are issuing this rulemaking under the authority described in “Subtitle VII, Part A, Subpart III, Section 44701: General requirements.” Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

This AD is issued in accordance with authority delegated by the Executive Director, Aircraft Certification Service, as authorized by FAA Order 8000.51C. In accordance with that order, issuance of ADs is normally a function of the Compliance

and Airworthiness Division, but during this transition period, the Executive Director has delegated the authority to issue ADs applicable to transport category airplanes to the Director of the System Oversight Division.

### **Regulatory Findings**

We determined that this proposed AD would not have federalism implications under Executive Order 13132. This proposed AD would not have a substantial direct effect on the States, on the relationship between the national Government and the States, or on the distribution of power and responsibilities among the various levels of government.

For the reasons discussed above, I certify this proposed regulation:

1. Is not a “significant regulatory action” under Executive Order 12866;
2. Is not a “significant rule” under the DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979);
3. Will not affect intrastate aviation in Alaska; and
4. Will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

### **List of Subjects in 14 CFR Part 39**

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

### **The Proposed Amendment**

Accordingly, under the authority delegated to me by the Administrator, the FAA proposes to amend 14 CFR part 39 as follows:

## **PART 39 - AIRWORTHINESS DIRECTIVES**

1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

### **§ 39.13 [Amended]**

2. The FAA amends § 39.13 by removing Airworthiness Directive (AD) 2013-11-12, Amendment 39-17472 (78 FR 33206, June 4, 2013), and adding the following new AD:

**Bombardier, Inc.:** Docket No. FAA-2018-0161; Product Identifier 2017-NM-088-AD.

#### **(a) Comments Due Date**

We must receive comments by [INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

#### **(b) Affected ADs**

This AD replaces AD 2013-11-12, Amendment 39-17472 (78 FR 33206, June 4, 2013) (“AD 2013-11-12”).

#### **(c) Applicability**

This AD applies to Bombardier, Inc., Model BD-100-1A10 airplanes, certificated in any category, having serial numbers 20003 through 20604 inclusive.

#### **(d) Subject**

Air Transport Association (ATA) of America Code 29, Hydraulic Power.

#### **(e) Reason**

This AD was prompted by reports of failure of a screw cap or end cap of the hydraulic system accumulator while on the ground, which resulted in loss of use of that

hydraulic system and high-energy impact damage to adjacent systems and structures. We are issuing this AD to prevent failure of a screw cap or end cap and loss of the related hydraulic system, which could result in damage to airplane structure and consequent reduced controllability of the airplane.

**(f) Compliance**

Comply with this AD within the compliance times specified, unless already done.

**(g) Retained Inspection with No Changes**

This paragraph restates the requirements of paragraph (g) of AD 2013-11-12 with no changes. For airplanes having serial numbers 20003 through 20335 inclusive: At the applicable time specified in paragraph (g)(1), (g)(2), or (g)(3) of this AD: Inspect the identification plate on the hydraulic system accumulator having part number (P/N) 900095-1 to determine if an “E” is part of the suffix of the serial number stamped on the identification plate, as listed in paragraph 2.B. of the Accomplishment Instructions of Bombardier Service Bulletin 100-29-14, dated December 16, 2010. A review of airplane maintenance records is acceptable in lieu of this inspection if the suffix of the serial number can be conclusively determined from that review.

(1) For an accumulator that has accumulated more than 3,150 total flight cycles as of July 9, 2013 (the effective date of AD 2013-11-12), inspect that accumulator within 350 flight cycles after July 9, 2013.

(2) For an accumulator that has accumulated 3,150 or fewer total flight cycles as of July 9, 2013 (the effective date of AD 2013-11-12), inspect that accumulator before it has accumulated 3,500 total flight cycles.

(3) For an accumulator on which it is not possible to determine the total flight cycles accumulated as of July 9, 2013 (the effective date of AD 2013-11-12), inspect that accumulator within 350 flight cycles after July 9, 2013.

**(h) Retained Replacement with No Changes**

This paragraph restates the requirements of paragraph (h) of AD 2013-11-12 with no changes. If, during the inspection required by paragraph (g) of this AD, any accumulator having P/N 900095-1 is found on which the letter “E” is not part of the suffix of the serial number on the identification plate: Before further flight, replace the accumulator with a new or serviceable accumulator, in accordance with paragraph 2.C. of the Accomplishment Instructions of Bombardier Service Bulletin 100-29-14, dated December 16, 2010.

**(i) Retained Parts Installation Prohibition with No Changes**

This paragraph restates the requirements of paragraph (i) of AD 2013-11-12 with no changes. For airplanes having serial numbers 20003 through 20335 inclusive: As of July 9, 2013 (the effective date of AD 2013-11-12), no person may install on any airplane a hydraulic system accumulator having P/N 900095-1, on which the letter “E” is not part of the suffix of the serial number on the identification plate.

**(j) New Requirement of this AD: Replacement of Brake System Hydraulic Accumulators**

For airplanes having serial numbers 20003 through 20347 inclusive: At the applicable time specified in paragraph (j)(1), (j)(2), or (j)(3) of this AD, replace all brake system hydraulic accumulators having P/N 33-147500 or P/N 33-155500 that are not identified by the letter “E” or “NAE” after the serial number on the identification plate

with an accumulator of the same part number that is identified by the letter “E” or “NAE” after the serial number. Do the replacement in accordance with the Accomplishment Instructions of Bombardier Service Bulletin 100-32-21, dated May 24, 2012.

(1) For an accumulator that has accumulated more than 4,700 total flight cycles as of the effective date of this AD, inspect that accumulator within 300 flight cycles after the effective date of this AD.

(2) For an accumulator that has accumulated 4,700 or fewer total flight cycles as of the effective date of this AD, inspect that accumulator before it has accumulated 5,000 total flight cycles.

(3) For an accumulator on which it is not possible to determine the total flight cycles accumulated as of the effective date of this AD, inspect that accumulator within 300 flight cycles after the effective date of this AD.

**(k) New Requirement of this AD: Additional Parts Installation Prohibition**

For airplanes having serial numbers 20003 through 20347 inclusive: As of the effective date of this AD, no person may install on any airplane a hydraulic system accumulator having P/N 33-147500 or P/N 33-155500, on which the letter “E” or “NAE” is not after the serial number on the identification plate.

**(l) New Requirement of this AD: Modification of the Inboard and Outboard Brake Accumulators**

For airplanes having serial numbers 20003 through 20395 inclusive: Within 1,600 flight hours or 14 months after the effective date of this AD, whichever occurs first, modify (re-orient) the installation of the inboard and outboard brake accumulators, in

accordance with the Accomplishment Instructions of Bombardier Service Bulletin 100-32-20, Revision 02, dated April 14, 2015.

**(m) Credit for Previous Actions**

This paragraph provides credit for the actions specified in paragraph (l) of this AD, if those actions were performed before the effective date of this AD using Bombardier Service Bulletin 100-32-20, dated February 25, 2013; or Revision 01, dated March 5, 2015.

**(n) New Requirement of this AD: Maintenance or Inspection Program Revision**

For airplanes having serial numbers 20003 through 20604 inclusive: Within 30 days after the effective date of this AD, revise the maintenance or inspection program, as applicable, to incorporate life limit tasks 29-21-13-101, 32-43-37-101, and 32-44-05-101 of Chapter 5, Part 2, Airworthiness Limitations, of Bombardier Challenger 300 BD-100 Time Limits/Maintenance Checks, Revision 17, dated December 15, 2016. The initial compliance time for the tasks is within the applicable time specified in that service information, or within 30 days after the effective date of this AD, whichever occurs later.

**(o) No Alternative Actions and Intervals**

After the maintenance or inspection program has been revised as required by paragraph (n) of this AD, no alternative actions (e.g., inspections) or intervals may be used unless the actions or intervals are approved as an alternative method of compliance (AMOC) in accordance with the procedures specified in paragraph (p)(1) of this AD.

**(p) Other FAA AD Provisions**

**(1) Alternative Methods of Compliance (AMOCs):** The Manager, New York ACO Branch, FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19. In accordance with 14 CFR 39.19, send your request to your principal inspector or local Flight Standards District Office, as appropriate. If sending information directly to the manager of the certification office, send it to ATTN: Program Manager, Continuing Operational Safety, FAA, New York ACO Branch, 1600 Stewart Avenue, Suite 410, Westbury, NY 11590; telephone: 516-228-7300; fax: 516-794-5531. Before using any approved AMOC, notify your appropriate principal inspector, or lacking a principal inspector, the manager of the local flight standards district office/certificate holding district office.

**(2) Contacting the Manufacturer:** For any requirement in this AD to obtain corrective actions from a manufacturer, the action must be accomplished using a method approved by the Manager, New York ACO Branch, FAA; or Transport Canada Civil Aviation (TCCA); or Bombardier, Inc.'s TCCA Design Approval Organization (DAO). If approved by the DAO, the approval must include the DAO-authorized signature.

**(q) Related Information**

(1) Refer to Mandatory Continuing Airworthiness Information (MCAI) Canadian Airworthiness Directive CF-2011-41R1, dated March 27, 2017, for related information. This MCAI may be found in the AD docket on the Internet at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2018-0161.

(2) For more information about this AD, contact Cesar Gomez, Aerospace Engineer, Airframe and Mechanical Systems Section, FAA, New York ACO Branch, 1600 Stewart Avenue, Suite 410, Westbury, NY 11590; telephone: 516-228-7318; fax: 516-794-5531.

(3) For service information identified in this AD, contact Bombardier, Inc., 400 Côte-Vertu Road West, Dorval, Québec H4S 1Y9, Canada; telephone 514-855-5000; fax 514-855-7401; email [thd.crj@aero.bombardier.com](mailto:thd.crj@aero.bombardier.com); Internet <http://www.bombardier.com>. You may view this service information at the FAA, Transport Standards Branch, 2200 South 216th St., Des Moines, WA. For information on the availability of this material at the FAA, call 206-231-3195.

Issued in Renton, Washington, on March 2, 2018.

Michael Kaszycki,  
Acting Director,  
System Oversight Division,  
Aircraft Certification Service.

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